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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,641	02/04/2004	Richard E. Raby	59525US002	3710
32692	7590	08/19/2010	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				BALLINGER, MICHAEL ROBERT
ART UNIT		PAPER NUMBER		
3732				
		NOTIFICATION DATE		DELIVERY MODE
		08/19/2010		ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/771,641	RABY ET AL.	
	Examiner	Art Unit	
	Michael R. Ballinger	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 May 2010.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-86 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-86 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>8/9/10</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

1. In acknowledgment of the amendments filed 19 May 2010, claims 1-86 are currently pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitations “is displayed separately from *the digital representation of the tooth*” on lines 8-9, “moves the orthodontic appliance relative to *the tooth within the 3D environment*” on lines 10-11. There is insufficient antecedent basis for “the digital representation of the tooth” and “the tooth”. The Examiner suggests amending the claims to replace these terms with “the 3D digital representation of the tooth”.

5. Similarly in claim 3 there is insufficient antecedent basis for the term “the digital representation of the tooth” on lines 2 and 3 of the claim.

6. In claim 4 there is insufficient antecedent basis for the terms “the digital representation of the tooth” on line 6, “the tooth of the dental arch within the 3D environment” on line 9, “the digital representation of the tooth” on line 10, and “the tooth within the 3D environment” on lines 17-18.

7. In claim 39 there is insufficient antecedent basis for the terms "the digital representation of the tooth of the dental arch" on lines 7-8, "the digital representation of the tooth" on line 11, and "the tooth within the 3D environment" on line 12.

8. In claim 41 there is insufficient antecedent basis for the term "the digital representation of the tooth within the 3D environment" on lines 2-3.

9. In claim 75 there is insufficient antecedent basis for the term "the digital representation of the tooth" on line 5, "the tooth within the 3D environment" on line 7, "the digital representation of the tooth" on line 8, and "the tooth within the 3D environment" on line 11.

10. In claim 77 there is insufficient antecedent basis for the term "the tooth within the 3D environment" on line 6.

11. In claim 83 there is insufficient antecedent basis for the term "the digital representation of the tooth of the dental arch" on line 3.

12. In claim 84 there is insufficient antecedent basis for the term "the tooth within the 3D environment" on lines 3-4.

13. In claim 85 there is insufficient antecedent basis for the term "the digital representation of the tooth" on line 3.

14. In claim 86 there is insufficient antecedent basis for the term "the digital representation of the tooth" on line 3.

Allowable Subject Matter

15. Claims 1-86 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

16. The following is a statement of reasons for the indication of allowable subject matter: nothing in the prior art alone or in combination teaches, suggests or renders obvious the method, system, and computer readable medium as recited in claims 1, 4, 39 and 75. Specifically, claims 1, 4, 39, and 75 require rendering or displaying "a three-dimensional (3D) digital representation of a tooth of a dental arch with a 3D environment". As pointed out in Applicant's remarks on page 27, the prior art to Taub et al. (U.S. 6,334,772) fails to teach the digital representation of the tooth is a 3D representation. Specifically, the "real image" of Taub is a 2D image and as such the representation of the tooth in the "real image", although digital, cannot be construed as a 3D representation. Additionally, modify the "real image" to include a 3D representation would destroy the functionality of the system and method taught by Taub. As Taub is directed to a system for placing real brackets at the correct location on a tooth based on the relative orientation between the tooth as seen in the "real image" and the virtual guide (33'). Thus the recitation requiring a "three-dimensional (3D digital representation of the tooth" along with the other steps as claimed is patentably distinct from the prior art of Taub. While the prior art of record to Sachdeva et al. (U.S. 2004/0214128) discloses planar guides in the 3D environment including 3D representations of teeth (see e.g., figure 15), nothing in Sachdeva teaches or suggests the displaying of the planar guides to include "rendering the planar guide at a location that is based on a position of the orthodontic appliance within the 3D environment" as claimed. Therefore claims 1-86 are allowable over the prior art.

Response to Arguments

17. Applicant's arguments, see page 27 of the remarks, filed 19 May 2010, with respect to claims 1, 4, 39, and 75 have been fully considered and are persuasive. The rejection of 19 February 2010 has been withdrawn.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R. Ballinger whose telephone number is (571)270-5567. The examiner can normally be reached on Monday thru Friday 8:00 AM to 5:00 PM.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris L. Rodriguez can be reached on (571)272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Ballinger/
Examiner, Art Unit 3732

/Cris L. Rodriguez/
Supervisory Patent Examiner, Art Unit 3732